[7590-01P]

NUCLEAR REGULATORY COMMISSION

[Docket No. 50-170; NRC-2012-0272]

Armed Forces Radiobiology Research Institute

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is considering renewal of Facility Operating License No. R-84, held by the Armed Forces Radiobiology Research Institute (AFRRI or the licensee) for the continued operation of its Training, Research, Isotope Production, General Atomics (GA) (TRIGA) research reactor. The NRC is issuing an environmental assessment (EA) and finding of no significant impact (FONSI) associated with the renewal of the license.

DATES: The EA and FONSI are available as of **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2012-0272** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID **NRC-2012-0272**. Address questions about NRC dockets to Carol Gallagher;

telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at http://www.nrc.gov/reading-rm/adams.html. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. For the convenience of the reader, the ADAMS accession numbers are provided in a table in the "Availability of Documents" section of this document.
- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: Cindy K. Montgomery, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Rockville, MD 20852; telephone: 301-415-3398; e-mail: Cindy.Montgomery@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is considering issuance of a renewed Facility Operating License No. R-84, held by AFRRI, which would authorize continued operation of the AFRRI TRIGA research reactor, located in Bethesda, Montgomery County, Maryland. As required by section 51.21 of

title 10 of the *Code of Federal Regulations* (10 CFR), “Criteria for and identification of licensing and regulatory actions requiring environmental assessments,” the NRC performed an EA. Based on the results of the EA that follows, the NRC has determined not to prepare an environmental impact statement for the proposed license renewal and is issuing a FONSI.

II. Environmental Assessment

Facility Site and Environs

The AFRRI complex and TRIGA Mark-F research reactor is located on the grounds of the Naval Support Activity Bethesda Military Installation, Montgomery County, Maryland. The AFRRI lies 3 miles (4.8 kilometers) north of the Washington, DC–Maryland line. The AFFRI site contains a moderate slope that declines northward towards a narrow creek valley, which feeds into Rock Creek. The nearest residence, 295 feet (90 meters) away, is Fisher House, a temporary home for families of patients of the medical center.

The AFRRI complex includes six separate primary buildings arranged in an interconnected complex. The principal radiation facilities housed within AFRRI are the TRIGA reactor facility, the linear accelerator facility, the Cobalt-60 facility, and the Low-Level Radiation Facility. In addition to these facilities, AFRRI also houses research laboratories, a hot cell, a radiochemistry lab, an animal clinical research facility, office space, and related support areas. The reactor facility, which includes the Mark-F reactor and its associated equipment, is housed in a single building of reinforced concrete. A mat foundation under the building distributes floor and shielding loads and also provides shielding against potential soil activation. The roof of the building is constructed of lightweight concrete poured over a corrugated steel form supported by steel roof trusses. Access to the AFRRI complex is controlled.

The AFRRI TRIGA research reactor is used to study the effects of neutron and gamma radiation on living organisms and instruments and to produce radioisotopes. The reactor is an open pool-type light water reactor that can operate in either steady-state mode up to a power level of 1.1 megawatt (thermal) (MWt) or pulse mode with a step reactivity insertion of up to 2.45 percent Δk/k. The reactor utilizes standard design GA fuel elements. The AFRRI TRIGA reactor has the capability of a horizontally movable core. The reactor pool contains approximately 15,000 gallons (56,800 liters) of light, demineralized water. The reactor tank is 19.5 feet (6 meters) deep and 13 feet (4 meters) wide in a clover leaf shape. The reactor core is positioned in the reactor tank under approximately 16 feet (5 meters) of water. The reactor tank water serves as radiation shielding, a neutron moderator and reflector, and reactor coolant. The AFRRI TRIGA reactor tank is constructed of aluminum and is embedded in ordinary concrete with a protective coating between the aluminum and concrete. The core is shielded in the radial directions by the reactor tank water and a minimum of approximately 9 feet (2.75 meters) of ordinary concrete (with the exception of the exposure rooms). The reactor is fueled with special nuclear material enriched to less than 20 percent Uranium-235. A detailed description of the reactor can be found in the AFRRI Safety Analysis Report (SAR).

The cooling systems for the AFRRI TRIGA research reactor are the primary cooling system, the secondary cooling system, the primary water purification system, and the makeup water system for the primary coolant. Natural convection of the water in the reactor pool dissipates the heat generated by the reactor core. Heated coolant rises out of the core and into the bulk pool water. The large heat sink provided by the volume of primary coolant allows several hours of full-power operation without any secondary cooling. During prolonged operations at the upper range of power levels, the secondary cooling system is activated and the waste heat is released to the atmosphere through the facility’s mechanical draft wet cooling

tower, which is located on the roof of the AFRRI complex. The heat removal system transfers heat from the reactor pool and primary piping system to the secondary system via a 1.5 megawatt (MW) heat exchanger. The secondary system uses a cooling tower to discharge the heat directly to the atmosphere. Secondary coolant make-up water to the cooling tower is provided by municipal water and is automatically added as needed by a float-type valve. The addition of secondary coolant make-up water is based on the evaporative loss through the cooling tower and is minimal with respect to the total capacity of the municipal water system. The environmental effects of thermal effluents from the cooling tower at 1.1 MWt reactor power level are negligible. During operation, the secondary system is maintained at a higher pressure than the primary system to minimize the likelihood of primary system contamination entering the secondary system and ultimately the environment. The reactor pool water level is monitored by a float activated switch. A drop in the reactor pool water level of 6 inches (15 centimeters) causes a reactor scram and activates several alarms. Instrumentation in the reactor tank, primary cooling water system, and primary water purification system permits the measurement of parameters important to the safe operation of the reactor and the associated cooling system. The licensee does not chemically treat the primary coolant.

Identification of the Proposed Action

The proposed action would renew Facility Operating License No. R-84 for a period of 20 years from the date of issuance of the renewed license. The proposed action is in accordance with the licensee's application dated June 24, 2004, as supplemented by letters dated March 4, August 13, September 27, October 21, and December 15, 2010; February 7, June 20, September 6, October 20, and November 28, 2011; January 17, April 20, and September 21, 2012; June 28, and August 27, 2013; December 4, 2014; March 30, 2015; and

February 9, February 27, August 5, September 12, September 21, September 26, September 27, September 30, and November 16, 2016 (collectively referred to as "the renewal application"). In accordance with 10 CFR 2.109, "Effect of timely renewal application," the existing license remains in effect until the NRC takes final action on the renewal application.

Need for the Proposed Action

The proposed action is needed to allow the continued operation of the AFRRI TRIGA research reactor to conduct radiobiology and related research, which relates to the mission of the armed forces of the United States in collaboration with other research entities, for a period of 20 years.

Environmental Impacts of the Proposed Action

The environmental impacts of the proposed action are discussed below. As discuss below, the proposed action will not have a significant environmental impact. In addition, the proposed action will not require any physical changes to the facility and the impacts are similar to those occurring during past operations.

A. Radiological Impact

Environmental Effects of Reactor Operations

Gaseous radioactive effluents resulting from the operation of the AFRRI TRIGA reactor released from the facility are Nitrogen-16 (N-16) and Argon-41 (Ar-41). These nuclides are released to the environment from the reactor building ventilation system through the AFRRI stack, which has a normal air flow rate of approximately 31,000 cubic feet per minute (878 cubic meters per minute). Because the half-life of N-16 is approximately 7.4 seconds, the release from the reactor stack is insignificant considering the amount of time it would take for N-16 to

reach the stack from its production point in the reactor core. Ar-41 is by far the most significant radionuclide released as a gaseous effluent during normal reactor operations. The maximum release of Ar-41 would occur from continuous operation at full power. Using the TS constraint of a maximum allowable 313.5 Ci release, the licensee calculated the dose to a member of the public using the Environmental Protection Agency COMPLY code to be 9.9 millirem/year (mrem/yr). The NRC staff reviewed these calculations and found them to be reasonable and conservative. The annual reports for the five years of operation from 2011 through 2015 show that the highest calculated actual release due to Ar-41, 6.21 Ci in 2011, would result in a dose of 0.2 mrem/yr to a member of the public, which is less than 1 percent of the 100 mrem/yr limit specified in 10 CFR 20.1301, “Dose limits for individual members of the public.” Additionally, this potential radiation dose also demonstrates compliance with the as low as is reasonably achievable (ALARA) air emissions dose constraint of 10 mrem specified in 10 CFR 20.1101, “Radiation protection programs,” paragraph (d).

There are no liquid radioactive wastes generated as a result of normal reactor operations, however, a liquid waste disposal system is available as a means to control the release of radioactive liquid waste from the AFRRI complex to the sanitary sewer system.

Low–level solid radioactive waste generated from reactor operations typically includes laboratory wastes such as glassware, paper, plastics, scintillation vials, disposable gloves, and radioactive biological samples. Low-level waste typically comprises a volume of one to five 55-gallon drums with less than 5 milliCuries per year, containing essentially all short-lived, radionuclides (i.e., Na-24, Mn-56, Cu-64). Reactor demineralizer resins and particulate filters are typically changed at intervals of 6 to 18 months, and are disposed of as solid waste. Solid radioactive wastes are transferred to the AFRRI byproduct license and disposed of under the requirements of that license.

Reactor staff members of the AFRRI TRIGA research reactor and other AFRRI personnel who work with radioactive materials are assigned personal dosimeters which assess whole body and extremity doses. Personnel exposures are well within the limits set forth by 10 CFR 20.1201, "Occupational dose limits for adults." There are no changes in reactor operation associated with license renewal that would lead to an increase in occupational dose expected as a result of the proposed action.

The radiation monitoring systems associated with reactor operations at AFRRI are provided and maintained as a means of ensuring compliance with radiation limits established under 10 CFR part 20. "Standards for Protection Against Radiation." The AFRRI monitoring systems consist of radiation area monitors (RAMs), continuous air monitors (CAMs), cooling water monitors, AFRRI perimeter monitors, personnel monitors, and stack gas and particulate monitors. The RAMs, placed in various areas of the reactor building, utilize scintillation detectors which measure gamma radiation. The CAMs, utilized in the reactor room, exposure rooms, and prep-area provide continuous air sampling and monitoring (gross beta-gamma activity) primarily of airborne particulate matter. The stack particulate and gas monitoring systems measure the beta-gamma activity emitted by radioactive particulates and the activity of gaseous radioactive nuclides, respectively, that are exhausted through the AFRRI stack. Perimeter monitoring at AFRRI consists of several stations, each equipped with a thermoluminescent dosimeter (TLD) which detects X-ray and gamma radiation. Even with uncertainties in individual TLDs of ±10 mrem, readings have been well under the regulatory limit.

The licensee takes environmental samples quarterly. Samples are taken of water, soil, and vegetation and have been below action levels specified in the AFRRI Health Physics Procedure. A review of licensee's annual reports for the five years of operation from 2011

through 2015 indicate that samples are generally indistinguishable from normal environmental background activity levels. Based on the NRC staff's review of data from the annual reports over the years from 2011 through 2015, the NRC staff concludes that operation of the AFRRI TRIGA research reactor does not have any significant radiological impact on the surrounding environment. The proposed renewal would not authorize any changes to reactor design or operation and thus would not change off-site radiation levels. Therefore, the NRC staff concludes that the proposed action would not have a significant radiological impact.

Environmental Effects of Accidents

Accident scenarios are discussed in Chapter 13 of the AFRRI SAR. The accidents analyzed in Chapter 13 range from anticipated events to a postulated fission product release with radiological consequences that exceed those of any fission product accident considered to be credible. This limiting accident is referred to as the maximum hypothetical accident (MHA) and is the bounding, most significant radiological fission product release accident. The MHA analysis was supplemented by letter dated January 17, 2012 and NRC staff evaluated the analysis and performed confirmatory calculations. The MHA scenario for AFRRI is the failure of a fueled experiment in air. For the MHA analysis, the licensee assumed that all noble gasses and fission products that accumulated inside the experiment capsule would be directly released into the reactor room air without radioactive decay and be ultimately released to the unrestricted area. The licensee also assumed that the fueled experiment would contain one gram of 19.75 percent low enriched uranium (LEU) and be irradiated in the AFRRI reactor for 42 minutes at 1 megawatt thermal (MWt). The 42-minute sample irradiation time was assumed because it is the time required to reach the TS limit of 1 curie (Ci) for iodine isotopes—Iodine-131 through Iodine-135. Licensee calculations estimate the maximum concentration of fission products that might

be present in the reactor room air following the MHA. This estimate is based on the actual percentage of fission product gases that escapes from the fuel and collects in the gap between the cladding and the fuel, as determined by experiments conducted by the reactor's designer, General Atomics. The licensee calculations show the Total Effective Dose Equivalent (TEDE) is within regulatory limits at all distances downwind from the AFRRI facility. The maximum calculated TEDE for a member of the public is calculated to be 76 mrem and the maximum calculated TEDE for an AFRRI occupational worker was calculated to be 508 mrem. The proposed license renewal would not significantly increase the probability or consequences of accidents. The NRC staff reviewed these calculations and found them to be performed using approved methods and are acceptable. The calculated public dose from an accidental release is less than the 10 CFR part 20 annual limit of 100 mrem and the occupational dose is a fraction of the 10 CFR part 20 annual limit of 5000 mrem.

The licensee has systems in place for controlling the release of radiological effluents and implements a radiation protection program to monitor personnel exposures and releases of radioactive effluents. The systems and radiation protection program are appropriate for the types and quantities of effluents expected to be generated by continued operation of the reactor. The NRC staff evaluated information in the licensee's application and data the licensee reported to the NRC for the last 5 years of operation to determine the projected radiological impact of the facility on the environment during the period of the renewed license. The NRC staff found that releases of radioactive material and personnel exposures have been well within applicable regulatory limits. Because the licensee has not requested any changes to the facility design or operating conditions, and no changes are being made in the types or quantities of effluents, there would be no significant change in the types or significant increase in the quantities of effluents that may be released off site and there would be no significant increases in individual

or cumulative radiation exposure. Therefore, the proposed license renewal would not increase routine occupational or public radiation exposure and would not change the environmental impact of facility operation. Based on its evaluation, the NRC staff concluded that continued operation of the reactor would not have a significant radiological impact.

B. Non-Radiological Impacts

Given that the proposed action does not involve any change in the operation of the reactor, change in the emissions or heat load dissipated to the environment, or construction or other land disturbance activities, the proposed action would not have a significant impact on land use, visual resources, air quality, noise, or terrestrial or aquatic resources. Additionally, because the TRIGA reactor uses municipal water for its cooling system, the proposed action would have no effect on ground or surface waters. No release of potentially harmful chemical substances will occur during normal operations. No significant quantities of hazardous chemicals, toxins, or reactives are present at the facility. No significant quantities of strong acids or bases are used or stored at the facility. The facility does use small volumes (typically less than 50 milliliters) of standard laboratory-grade chemicals for experiments, but these chemicals have low toxicity, reactivity and corrosivity characteristics. These chemicals are disposed through an established procedure with the Uniformed Services University of the Health Science's Environment Health Office in accordance with the U.S. Environmental Protection Agency and state of Maryland requirements. Small amounts of chemicals and/or high-solid content water may be released from the facility through the sanitary sewer during periodic blowdown of the cooling tower or from laboratory experiments. For the secondary coolant system, a commercial cooling water treatment system is used to control growth of organisms, keep the stainless steel heat exchanger surfaces clean, and prevent corrosion and scale. These chemicals are highly diluted and pose minimal hazards to the environment and operating

staff. Chemicals are disposed through an established procedure with the Uniformed Services University of the Health Science's Environment Health Office in accordance with the U.S. Environmental Protection Agency and state of Maryland requirements. Based on this information, the NRC staff concludes that the proposed action would not result in significant non-radiological waste impacts. Given that the proposed action does not involve any change in the design or operation of the reactor, does not use ground or surface waters for its cooling system, and involves limited chemical usage and releases, the NRC concludes that the proposed action would have no significant non-radiological impacts.

Other Applicable Environmental Laws:

In addition to the National Environmental Policy Act, the NRC has responsibilities that are derived from other environmental laws, which include the Endangered Species Act, Coastal Zone Management Act, National Historic Preservation Act, Fish and Wildlife Coordination Act, and Executive Order 12898 on Environmental Justice. The following presents a brief discussion of impacts associated with these laws and other requirements.

1. Endangered Species Act (ESA)

The ESA was enacted to prevent further decline of endangered and threatened species and to restore those species and their critical habitat. Section 7 of the ESA requires Federal agencies to consult with the U.S. Fish and Wildlife's (FWS) or National Marine Fisheries Service (NMFS) regarding action that may affect listed species or designated critical habitats.

The NRC staff conducted a search of Federally listed species and critical habitats that have the potential to occur in the vicinity of the AFFRI site using the FWS Environmental Conservation Online System (ECOS) Information for Planning and Conservation (IPaC) system. The IPaC system report states that no Federally endangered or threatened species or critical

habitats occur in the vicinity of the AFFRI site (ADAMS Accession No. ML16218A224). Accordingly, the NRC concludes that the proposed license renewal of the TRIGA reactor would have no effect on Federally listed species or critical habitats. Federal agencies are not required to consult with the FWS if they determine that an action will not affect listed species or critical habitats (ADAMS Accession No. ML16120A505). Thus, the ESA does not require the NRC to engage in consultation for the proposed TRIGA reactor license renewal, and the NRC considers its obligations under ESA Section 7 to be fulfilled for the proposed action.

2. Coastal Zone Management Act (CZMA)

The CZMA, in part, encourages states to preserve, protect, develop, or restore coastal resources. Applicants for Federal licenses to conduct an activity that affects any land or water use or natural resource of the coastal zone of a state must provide a certification that the proposed activity complies with the state's approved coastal zone management program and will be conducted consistent with that program. Montgomery County is not located within Maryland's coastal zone. Because the AFRRI reactor is not located within or near any managed coastal zones, the proposed action would not affect any coastal zones and a Coastal Zone Management Act consistency certification is not required.

3. National Historic Preservation Act (NHPA)

The NHPA requires Federal agencies to consider the effects of their undertakings on historic properties. As stated in the Act, historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP). The NHRP lists historic properties in the vicinity of the AFRRI and the National Naval Medical Center. The closest property is the Bethesda Naval Hospital Tower, (39°00′06″N 77°05′41″W), within 0.5 miles. Operation of the AFRRI reactor has not likely had

any impact on this property. The license renewal does not request any new construction or modifications to the facility. Based on this information, the NRC staff finds that the potential impacts of continued operation of AFRRI under the proposed license renewal would have no adverse effect on historic and archaeological resources at the National Naval Medical Center and AFRRI.

4. Fish and Wildlife Coordination Act (FWCA)

The FWCA requires Federal agencies that license water development projects to consult with the FWS (or NMFS, when applicable) and state wildlife agencies regarding the potential impacts on fish and wildlife resources.

The licensee is not planning any water resource development projects, including any modifications relating to impounding a body of water, damming, diverting a stream or river, deepening a channel, irrigation, or altering a body of water for navigation or drainage. Therefore, no coordination or consultation with FWS, pursuant to the Fish and Wildlife Coordination Act, is required for the proposed action.

5. Executive Order 12898 – Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 FR 7629 (February 16, 1994), directs agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The environmental justice impact analysis evaluates the potential for disproportionately high and adverse human health and environmental effects on minority and low-income populations that could result from the relicensing and the continued operation of the AFRRI. Such effects may include human health, biological, cultural, economic,

or social impacts. Minority and low-income populations are subsets of the general public residing around the AFRRI, and all are exposed to the same health and environmental effects generated from activities at the AFRRI.

Minority Populations in the Vicinity of the AFRRI – According to the U.S. Census Bureau's 2010 Census, approximately 52 percent of the total population (approximately 1.5 million individuals) residing within a 10-mile radius of AFRRI identified themselves as minority. The largest minority populations were Black or African American (approximately 355,000 persons or 23 percent) and persons of Hispanic, Latino, or Spanish origin of any race (approximately 261,000 persons or 17 percent). According to the 2010 Census, about 51 percent of the Montgomery County population identified themselves as minorities, with persons of Black or African American and Hispanic, Latino, or Spanish origin of any race comprising the largest minority populations (17.2 and 17 percent, respectively). According to the U.S. Census Bureau's 2015 American Community Survey 1-Year Estimates, the minority population of Montgomery County, as a percent of the total population, had increased to about 55 percent.

Low-income Populations in the Vicinity of the AFRRI – According to the U.S. Census Bureau's 2010–2014 American Community Survey 5-Year Estimates, approximately 157,000 persons and 21,000 families (approximately 10 and 6 percent, respectively) residing within a 10-mile radius of the AFRRI were identified as living below the Federal poverty threshold. The 2014 Federal poverty threshold was $24,230 for a family of four.

According to the U.S. Census Bureau's 2015 American Community Survey 1-Year Estimates, the median household income for Maryland was $75,847, while 6.7 percent of families and 9.7 percent of the state population were found to be living below the Federal poverty threshold. Montgomery County had a much higher median household income average

($98,917) and a lower percent of families (5.2 percent) and individuals (7.5 percent) living below the poverty level, respectively.

Impact Analysis — Potential impacts to minority and low-income populations would consist of radiological effects, however radiation doses from continued operations associated with the license renewal are expected to continue at current levels, and would be well below regulatory limits. No additional visual or noise impacts are expected to result from the proposed action.

Based on this information and the analysis of human health and environmental impacts presented in this EA, the proposed license renewal would not have disproportionately high and adverse human health and environmental effects on minority and low-income populations residing in the vicinity of the AFRRI.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to license renewal, the NRC considered denying the proposed action. If the NRC denied the request for license renewal, reactor operations would cease and decommissioning would be required (sooner than if a renewed license were issued), and the environmental effects of decommissioning would occur. Decommissioning would be conducted in accordance with an NRC-approved decommissioning plan, which would require a separate environmental review under 10 CFR 51.21. Cessation of reactor operations would reduce or eliminate radioactive effluents and emissions associated with operations. However, as previously discussed in this EA, radioactive effluents and emissions from reactor operations are a small fraction of the applicable regulatory limits. Therefore, the environmental impacts of license renewal and the denial of the request for license renewal would be similar. In addition,

denying the request for license renewal would eliminate the benefits of the research and services provided by the AFRRI TRIGA reactor.

Alternative Use of Resources

The proposed action does not involve the use of any different resources or significant quantities of resources beyond those previously authorized in the issuance of License Amendment No. 18 to Facility Operating License No. R-84 for the AFRRI TRIGA research reactor dated August 1, 1984, as supplemented by Amendment No. 23, dated September 5, 2000, which renewed the Facility Operating License No. R-84 for a period of 20 years.

Agencies and Persons Consulted

The NRC staff did not enter into consultation with any other Federal agency or with the State of Maryland regarding the environmental impact of the proposed action. However, on October 28, 2016, the NRC staff notified the Maryland State official, Tom Levering, Emergency Response Director, Maryland Department of the Environment, of the proposed action. The State official had no comments.

III. Finding of No Significant Impact

The NRC is considering renewal of Facility Operating License No. R-84, held by the AFFRI for the continued operation of its TRIGA research reactor. The NRC staff has prepared an EA as part of its review of the proposed action. On the basis of the EA included in Section II above and incorporated by reference in this finding, the NRC finds that there are the proposed action will not have a significant effect on the quality of the human environment. The proposed

action would result in no significant impacts on surface or groundwater resources, or the radiological environment. In addition, the proposed action will not affect Federally-protected species or affect any designated habitat. The NRC staff's evaluation considered information in the application, as supplemented, and the staff's review of other environmental documents. Section IV below lists the environmental documents related to the proposed action and includes information on the availability of these documents. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

IV. Availability of Documents

The following table identifies the environmental and other documents cited in this document and related to the NRC's FONSI. These documents are available for public inspection online through ADAMS at *http://www.nrc.gov/reading-rm/adams.html* or in person at the NRC's PDR as described previously.

DOCUMENT	ADAMS ACCESSION NO.
Armed Forces Radiobiology Research Institute Renewal of Operating License R-84 for 1 MW TRIGA Research Reactor (June 24, 2004)	**ML041800067**
Reactor Operator Requalification Program for Armed Forces Radiobiology Research Institute (Financial Qualifications and Decommissioning Information for the AFRRI TRIGA Reactor Facility; July 2004 Changes) (June 24, 2004)	**ML041800071**
Environmental Report for Armed Forces Radiobiology Research Institute (June 24, 2004)	**ML041800068**
Safety Analysis Report for Armed Forces Radiobiology Research Institute (AFRRI) (redacted) (June 24, 2004)	**ML101650415**
Safety Analysis Report Chapters 4 and 13 for Armed Forces Radiobiology Research Institute (AFRRI) (redacted) (March 4, 2010)	**ML101650422**
Request for Additional Information Regarding	**ML102310075**

DOCUMENT	ADAMS ACCESSION NO.
Financial Qualifications for the License Renewal Review (August 13, 2010)	
Armed Forces Radiobiology Research Institute Response to Request for Additional Information dated July 19, 2010 Re: Technical Specifications (redacted) (September 27, 2010)	**ML110260024**
Letter re: Armed Forces Radiobiology Research Institute-Request for Additional Information Regarding the Application for License Renewal (TAC No. ME1587) (October 21, 2010)	**ML103070121**
Request for Additional Information Re: License Amendment, Separation of Byproduct Material. (December 15, 2010)	**ML103560456**
Request for Additional Information Regarding the Application for License Renewal (February 7, 2011)	**ML110460687**
Armed Forces Radiobiology Research Institute - Response to Request for Additional Information Regarding the Application for License Renewal (June 20, 2011)	**ML112232300**
Response to Request for Additional Information Regarding the Application for Renewal of License R-84. (September 6, 2011)	**ML11269A030**
Armed Forces Radiobiology Research Institute - Response to NRC Request for Additional Information Questions 14-41 and Resubmittal of Technical Specifications (redacted) (October 20, 2011)	**ML113410120**
Response to Request for Additional Information Regarding the Application for License Renewal (TAC No. ME1587). (November 28, 2011)	**ML11341A133**
Armed Forces Radiobiology Research Institute, Technical Responses to NRC Request for Additional Information Re: License Renewal (TAC No. ME1587) (redacted) (November 28, 2011)	**ML113460085**
Armed Forces Radiobiology Research Institute - 2011 Annual Operating Report (March 30, 2012)	**ML12100A162**
Request For Additional Information Regarding The Application For License Renewal (TAC No. ME1587) (April 20, 2012)	**ML12122A146**
Response to Request for Additional Information Regarding the Application for License Renewal (TAC NO. ME1587) (January 17, 2012)	**ML12032A054**
Request for Additional Information Regarding the	**ML12272A303**

DOCUMENT	ADAMS ACCESSION NO.
Application for License Renewal (September 21, 2012)	
Armed Forces Radiobiology Research Institute - 2012 Annual Operating Report (March 25, 2013)	**ML13092A107**
Armed Forces Radiobiology Research Institute - Response to Request for Additional Information Regarding the Application for License Renewal (TAC ME1587) (June 28, 2013)	**ML13182A084**
US Dept. of Defense, Uniformed Services University of the Health Sciences - Submittal of revised Technical Specifications, Docket 50-170. (August 27, 2013)	**ML13254A064**
Armed Forces Radiobiology Research Institute - 2013 Annual Operating Report (March 25, 2014)	**ML14093A931**
Request for Additional Information Regarding the Renewal of Facility Operating License No. R-84 for the AFRRI TRIGA Reactor Facility (December 4, 2014)	**ML14349A319**
Armed Forces Radiobiology Research Institute - 2014 Annual Operating Report (March 25, 2015)	**ML15091A256**
Letter from Stephen L. Miller Enclosing revision of the Technical Specifications for the Armed Forces Radiobiology Research Institute reactor (License R-84, docket 50-170). (March 30, 2015)	**ML15093A099**
Request for Additional Information Regarding the Application for License Renewal. (February 9, 2016)	**ML16040A310**
Submittal of Technical Specifications for the Armed Forces Radiobiology Research Institute Facility. (February 26, 2016)	**ML16060A210**
Armed Forces Radiobiology Research Institute - 2015 Annual Operating Report (March 23, 2016)	**ML16089A373**
U.S. Fish and Wildlife Service, Armed Forces Radiobiology Research Institute TRIGA Research Reactor Proposed License Renewal, IPaC Trust Resources Report, (August 5, 2016)	**ML16218A224**
U.S. Fish and Wildlife Service, Endangered Species Consultations Frequently Asked Questions, (July 15, 2013)	**ML16120A505**

Response to NRR Request for Additional Information Regarding the Application for License Renewal for AFRRI Facility (August 5, 2016)	**ML16232A177**
US Department of Defense, Armed Forces Radiobiology Research Institute (AFRRI), Submittal of Request for Additional Information Regarding the Application for License Renewal (TAC No. ME1587) (September 12, 2016)	**ML16258A463**
Reactor Operator Requalification Program for the AFRRI TRIGA Reactor Facility (September 12, 2016)	**ML16258A464**
Request for Additional Information Regarding the Application for License Renewal (TAC No. ME1587) (September 21, 2016)	**ML16267A447**
AFRRI Email Regarding License Renewal Application (September 26, 2016)	**ML16270A541**
AFRRI Email Response to Request for Additional Information for License Renewal (September 27, 2016)	**ML16271A536**
Letter from Stephen L. Miller Enclosing Revision of the Technical Specifications for the Armed Forces Radiobiology Research Institute Reactor (September 30, 2016)	**ML16278A111**
US Armed Forces Radiobiology Research Institute Letter Regarding Review of Draft License R-84 (November 16, 2016)	**ML16321A461**

Dated at Rockville, Maryland, this 18th day of November, 2016.

For the Nuclear Regulatory Commission.

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